

```

H -----MGPTLAVPTPYGCIGCKLPQPEYPPALIIFMFCAMVITIVVDLIGNSMVILAVTKNKKLRNS
M MATVPKSNMGPTKAVPTPFGCIGCKLPKPDYPPALIIFMFCAMVITIVVDLIGNSMVILAVTKNKKLRNS
R -----

H GNIFVVSLSVADMLVAIYPYPLMLHAMSIGGWDLSQLQCQMVGFITGLSVVGSIFNIVAIAINRYCYICH
M GNIFVASLSVADMLVAIYPYPLMLYAMSVGGWDLSQLQCQMVGLVTGLSVVGSIFNITAITAINRYCYICH
R -----YCYICH

H SLQYERIFSVRNTCIYLVITWIMTVLAVLPNMYIGTIEYDPRTYTCIFNYLNNPVFTVTCIHFVLPPLI
M SLQYKRIFSLRNTCIYLVVTWVMTVLAVLPNMYIGTIEYDPRTYTCIFNYVNNPAFTVTCIHFVLPPLI
R SLQYNADLQPANTCIYLVVTWVMTVLDVLPNVYIGTIEYDPRTYTCYFNYVNNPAFTVTCIHFVLPPLI

H IVGFCYVRIWTKVLAARDPAGQNPDNQLAEVRNFLTMEVIFLLFAVCWCPCINVLTVLVAVSPKEMAGKIP
M IVGICYTKIWIWIKVLAARDPAGQNPDNQFAEVRNFLTMEVIFLLFAVCWCPCVNVLTVLVAVIPKEMAGKIP
R IVGICYTKIWIWIKVLADRDPAQNPDPNQFAEVRNFLTMEVIFLL-----

H NWLYLAAYFIAYFNSCLNAVIYGLLNENFRREYWTIFHAMRHPPIIFFPGLISDIREMQEARTLARARAH
M NWLYLAAYCIAAYFNSCLNAIIYGILNESFRREYWTIFHAMRHPILFISHLISDIRETWETRALTRARVRA
R -----

H RDQAREQDRAHACPAVEETPMNVNRNVPLPGDAAAGHPDRASGHPKPHSRSSSAYRKSASTHHKSVFHSK
M RDQVREQERARACVAVEGTPRNVNRNVLLPGDASAPHSDRASVRPKPQT-----RSTSVYRK
R -----

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Fig. 1A

```

H  AASGHLKPVSGHSKPASGHPKSA-TVYPKPASVHFHFKGDSVHFHFKPDSVHFHFKPASSNPKPITGHH
M  PASIHHKSI SGHPKASVYPKPASSVHCKPASVHFHFKPASVHFHFKGDSVYFKGDTVHYRAAS---KLVTSHR
R  -----

H  VSAGSHSKSAFSAATSHPKP----IKPATSHAEP TTADYPKPAT TSHPKPAAADNP ELSASHCPEIPAIA
M  ISAG-----PSTSHPTSMAGYIKSGTSHPAT TTVDYLEPAT TSHSVLTAVDLPEVSASHCLEMTSTG
R  -----

H  HPVSDDSDLPESASSPAAGPTKPAASQLESDTIADLPDPTVVTTSTNDYHDVVVVD----VEDDPDEMAV
M  HLRAD-----ISASVLPSPVFELAA TP-----PDTTAIPIASGDYRKVVLIDDDSDDCSDEMAV
R  -----

```

Fig. 1B

TGT TTGCTGTGGACCTGGCTGCTGATCCTGAGCCTGCTGGGAGATCTTAACGATCCCCAGGAGCAACATGGGGCCCCACCCCTAG
 CGGTTCCACCCCTATGGCTGTATTGGCTGTAAAGCTACCCAGCCAGAATACCCACGGCTCTAATCATCTTTATGTTCTGCGC
 GATGGTTATCACCATCGTTGTAGACCTAATCGGCAACTCCATGGTCATTTTGGCTGTGACGAAGAACAAGAGTCCGGAATTCT
 GGCAACATCTTCGTGGTCAGTCTCTCTGTGCCGATATGCTGGTGGCCATCTACCCATACCCCTTTGATGCTGCATGCCATGTCCA
 TTGGGGGCTGGGATCTGAGCCAGTTACAGTGCCAGATGGTCGGGTTTCATCACAGGGCTGAGTGTGGTGGCTCCATCTTCAACAT
 CGTGGCAATCGCTATCAACCGTTACTGTCTACATCTGCCACAGCCTCCAGTACGAACGGATCTTCAGTGTGCGCAATACCTGCATC
 TACCTGGTCATCACCTGGATCATGACCGTCTGGCTGTCCCTGCCCAACATGTACATTGGCACCATCGAGTACGATCCTCGCACCT
 ACACCTGCATCTTCAACTATCTGAACAACCCCTGTCTTCACTGTTACCATCGTCTGCATCCACTTCGTCTCCCTCTCCTCATCGT
 GGGTTTCTGTACGTGAGGATCTGGACCACAAAGTGTGGCGGCCCTGACCCCTGCAGGGCAGAAATCCTGACAAACCAACTTGTGAG
 GTTCGCAATTTTCTAACCATGTTTGTGATCTTCTCTCTCTTTCAGTGTGTGCTGCCCTATCAACGTGCTCACTGTCTTGGTGG
 CTGTCAGTCCGAAGGAGATGGCAGGCAAGATCCCCAACTGGCTTTATCTTGCAGCCTACTTCATAGCCTACTTCAACAGCTGCCT
 CAACGCTGTGATCTACGGGCTCCTCAATGAGAAATTTCCGAAGAGAAATACTGGACCATCTTCCATGCTATGCGGCACCCATATCATA
 TTCTTCCCTGGCCTCATCAGTGATATTCTGTGAGATGCAGGAGGCCCGTACCCCTGGCCCGGCCCTGCCCCATGCTCGGACCAAG²¹⁹
 CTCGTGAACAAGACCGTGCCCATGCCCTGTCTGTGTGGAGGAAACCCCGATGAATGTCCGGAATGTCCATTACCTGGTGATGC
 TGCAGCTGGCCACCCCGACCGTGCCCTCTGGCCACCCCTAAGCCCATTCACAGATCCTCCTCTGCTTGCCTATCGCAAAATCTGCCTCTACC
 CACCACAAAGTCTGTCTTTAGCCACTCCAAAGGCTGCCCTCTGTGTCACTCAAGCCTGTCTCTGGCCACTCCCAAGCCTGCCTCTGGTC
 ACCCCAAGTCTGCCACTGTCTACCCCTAAGCCTGCCCTCTGTGCCATTTCAAGGGTGACTCTGTCCATTTCAAGGGTGACTCTGTCCA
 TTTCAAGCCTGACTCTGTTTCAATTTCAAGCCTGCTTCCAGCAACCCCAAGCCCATCACTGGCCACCATGTCTCTGCTGGCAGCCAC
 TCCAAAGTCTGCCCTTCAAGTGTGCCACCCAGCCACCCCTAAACCCATCAAGCCAGCTACCAAGCCCATGTGAGCCCACTGCTGACT
 ATCCCAAGCCTGCCACTACCAAGCCACCCCTAAGCCCGCTGTGCTGACAACCCCTGAGCTCTCTGCCCTCCCATTTGCCCCGAGATCCC
 TGCCATTGCCACCCCTGTGTGACGACAGTGACCTCCCTGAGTCGGCCTCTAGCCCTGCGGCTGGGCCCAACCAAGCCTGCTGCC
 AGCCAGCTGGAGTCTGACACCATCGCTGACCTTCTGACCCCTACTGTAGTCAGTCACTACCAATGATTACCATGATGTCGTGG
 TTGTTGATGTTGAAGATGATCCTGATGAAATGGCTGTGTGAAAAATGCTCTCTCGTAGGTGGCCAGGCAGT

Fig. 2A

AAGATCCTGAGCTTGCCCTGGGAGGAATGGCCACGGTCCCCAAGAGCAACATGGGACCTACAAAAGGCGGTTCACACCCCATTCGGC
 TGCAATTGGCTGTAGCTGCCAAAGCCCCGACTACCCGCCAGCTCTAATCATCTTTCATGTTCTGCGCAATGGTCATCACAGTCGTGCG
 TAGACCTGATCGGGAACTCCATGGTCAATTTTGGCTGTGACCAAGAACAAGAGCTCCGAAATTTCTGGCAACATCTTTTGTGGCCAG
 CCTCTCTGTGGCAGACATGCTGGTGCCATCTACCCCTACCCCTTTGATGCTGTATGCCATGTCAAGTTGGGGCTGGGATCTGAGT
 CAGTCCAGTGCCAGATGGTCGGGTTGGTCAACAGGACTGAGCGTAGTCGGTTCATCTTCAACATTAATGCCATTGCCATCAACCC
 GTTACTGCTACATCTGCCACAGCCTCCAATAACAAGCGGATCTTCAGCCTGCGCAACACTTGCATCTATCTGGTGGTTACCTGGGT
 CATGACTGTCTGGCTGTCCGTGCCCTAACATGTACATTTGGCACCATTTGAGTATGACCCCTCGCACCTACACCTGCATCTTCAACTAT
 GTGAACAATCCTGCCCTTACCGTGACCATTTGTCTGCATCCACTTCGTCCCTCTCATCATAGTTGGTTATTGCTACACGAAAA
 TCTGGATCAAAGTGTGGCAGCCCCGTGACCCAGCTGGACAGAACTCTGACAAACCAGTTTGTGAGGTTTCGAAATTTTCTAACCAT
 GTTGTGATCTTCCTCCTTTTTCAGATTGCTGGTGCCCTGTCAATGTGCTCACGTGTGTTGGTGGCTGTCATTCCAAAGGAAATGG
 CAGGCAAGATCCCCAACTGGCTTTATCTTGCAGCCTACTGCATAGCCTACTTCAACAGCTGCCCTCAACGCCATCATCTACGGTAT
 CCTCAATGAGAGTTTCCGAAGAGAAATACTGGACCATCTTCCATGCTATGCGGCACCCCTATCCTGTTTCATCTCTCACCTCATCAGT
 GATATTCGGGAGACTTGGGAGACCCGAGCTCTCACTGTCGCCGTGTCCGTGCCGTGATCAAGTCCGAGAGCAAGAGCGTGCTC
 GTGCCCTGTGCTGCTGGAGGGGACCCCAAGGAACGTCCGGAATGTTCTACTGCTGGTGTGATGATCATCAGCACCCCACTCTGATCG
 TGCCCTCTGCTCCCAAGCCCCAAACCCAGGTCTACTTCTGTCTACCGCAAAACCTGCCCTCTATCCACCAACAAGTCTATTTCTGGC
 CACCCCCAAGTCTGCCCTCTGTTTACCCCTAAGCCAGCCTCCTCTGTCCATTGCAAGCCTGCCCTCTGTCCATTTCAAACCCGCCCTCTG
 TTCATTTCAAGGGTGACTCTGTCTATTTCAGGGGAGACACTGTCCATTACAGGGCTGCTTCCAAACTTGTACACAGTCACCGTAT
 CTCTGCTGGCCCTTCCACCCAGTCACCCCTACATCCATGGCTGGCTACATTAATACTGTTACCCAGCCACCCCTGCCACCACTGTT
 GACTATCTCGAACCTGCCACACCCAGCCACTCTGTGCTCACTGTCTCGACCTCCCTGAGGTCTCAGCCTCCCAATTGCCCTTGAGA
 TGACCCAGCACTGGCCACCTCAGAGCTGACATTTCTGCCCTCTGTCTCTCTGTACCCCTTCGAGCTTGTGCCACCCCTCCTGA
 TACCACCTGCAATCCCCCATTTGCCCTCTGGTGATTACCGCAAGTCTGTCTTATTGATGATGATTCTGTGATTTCTGCTCTGAT
 GAGATGGCTGTGTGA

Fig. 2B

TACTGCTACATCTGCCACAGCCTCCAGTACAAATGCGGATCTTCAGCCCTGCTAACACTTGCACTCTATCTGGTTGTTACCTGGGTCA
TGACTGTTCTGGATGTCCTGCCTAATGTGTACATTTGGCACCATTTGAGTATGACCCCTCGCACCTACACCTGCTACTTCAACTATGT
GAACAACCCCTGCCCTTTACTGTGACCATTTGTCTGCATCCACTTCGTCCCTCCCTCTCATCATAGTCGGTTATTGCTACACAAAAATC
TGGATCAAAGTGCTGGCAGACCGGACCCAGCTGGACAGAAATCCTGACAACCCAGTTTGCTGAGGTTTCGAAATTTTCTAACCATGT
TTGTGATCTTCCTCCTT

Fig. 2C



FIG. 3



FIG. 4A

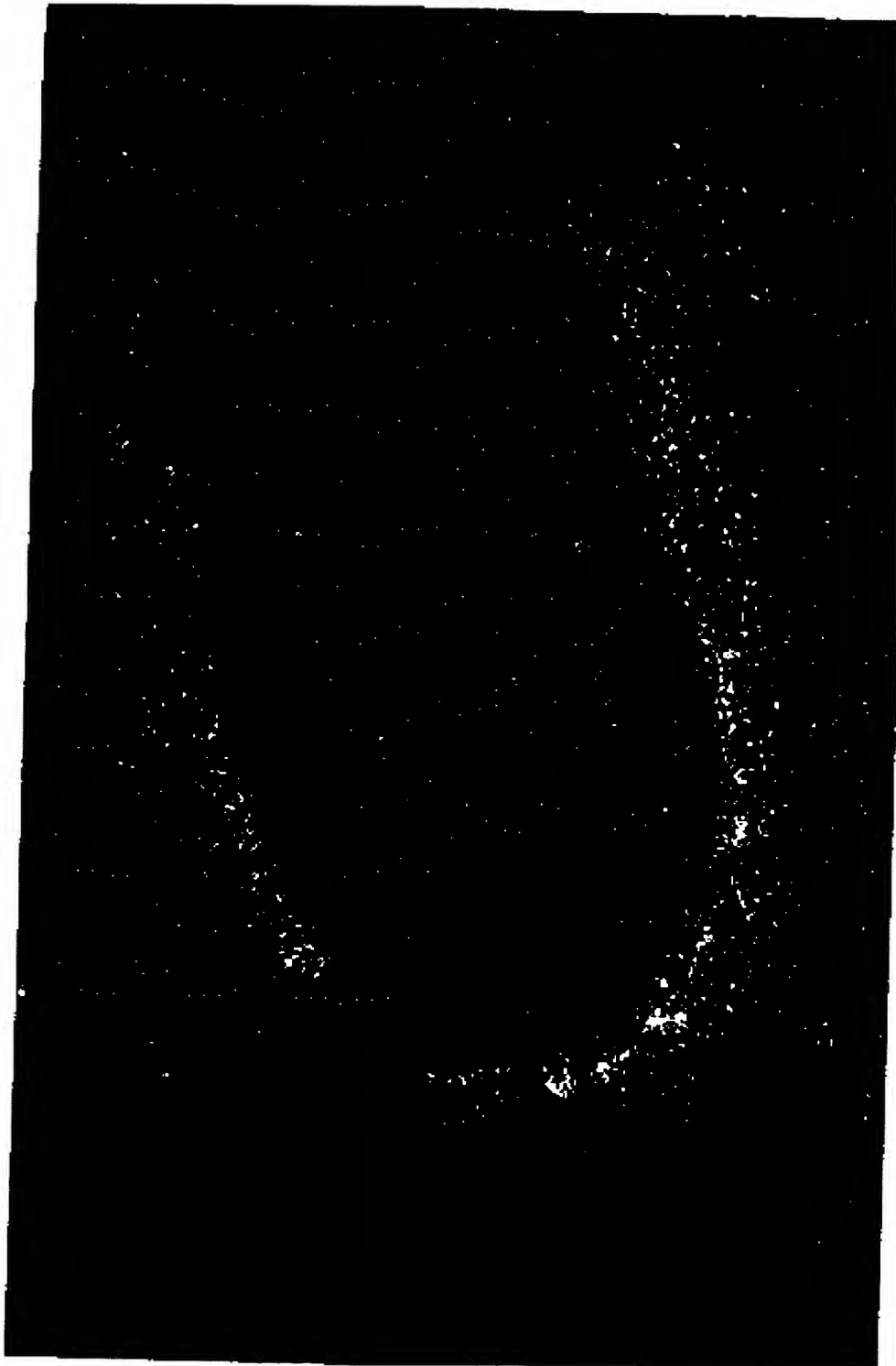


FIG. 4B



FIG. 4C

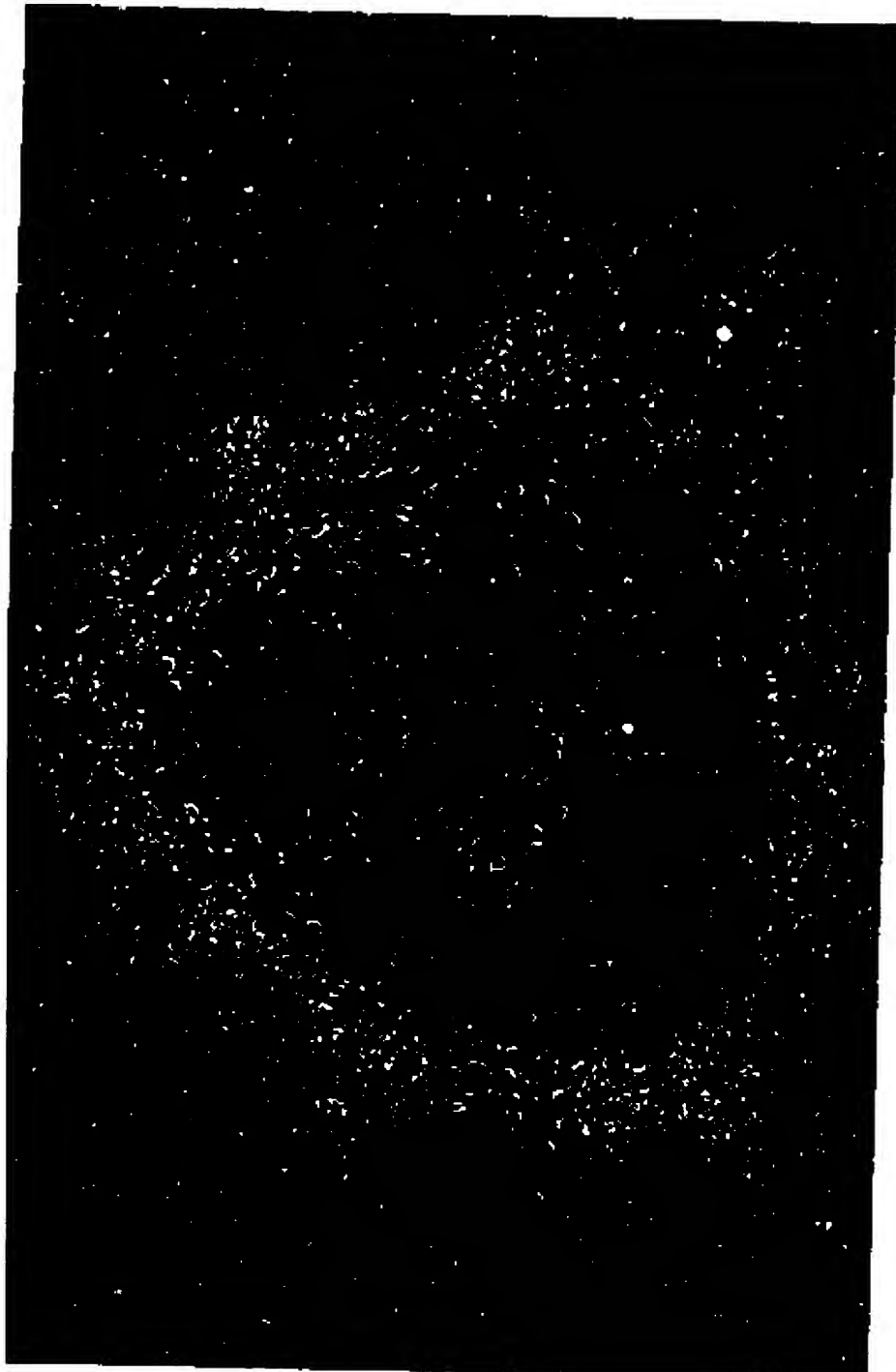


FIG. 4D

AF003625 27599 tgtttgctgtctggacctggctgctgatccctgagcctgctgggagatcttaacgatcccc
 U52219 1 |||||
 1 tgtttgctgtctggacctggctgctgatccctgagcctgctgggagatcttaacgatcccc

AF003625 27659 aggagcaacatggggccaccctagcgggtccaccacctatggctgtattggctgtaag
 U52219 61 |||||
 MRR AA 1 aggagcaacatggggccaccctagcgggtccaccacctatggctgtattggctgtaag
 M G P T L A V P T P Y G C I G C K

AF003625 27719 ctacccagccagaataccccaccggctctaatcatctttatgttctgcgcgatgggttatc
 U52219 121 |||||
 MRR AA 18 ctacccagccagaataccccaccggctctaatcatctttatgttctgcgcgatgggttatc
 L P Q P E Y P P A L I I F M F C A M V I

AF003625 27779 accatcggttgttagacctaatcggcaactccatggtcattttggctgtgacgaagaacaag
 U52219 181 |||||
 MRR AA 38 accatcggttgttagacctaatcggcaactccatggtcattttggctgtgacgaagaacaag
 T I V V D L I G N S M V I L A V T K N K

Fig. 5A

AF003625	30892	aatcgctatcaaccggttactgctacatctgccacagcctccagtagaacggatcttcag	
U52219	432	aatcgctatcaaccggttactgctacatctgccacagcctccagtagaacggatcttcag	
MRR AA	122	I A I N R Y C Y I C H S L Q Y E R I F S	
AF003625	30952	tgtgcgcaatacctgcatctacctgggtcatcacctggatcatgacggtcctgggtgctct	
U52219	492	tgtgcgcaatacctgcatctacctgggtcatcacctggatcatgacggtcctgggtgctct	
MRR AA	142	V R N T C I Y L V I T W I M T V L A V L	
AF003625	31012	gcccacaatgtacattggcaccatcgagtagatcctcgacacctacacctgcatcttcaa	
U52219	552	gcccacaatgtacattggcaccatcgagtagatcctcgacacctacacctgcatcttcaa	
MRR AA	162	P N M Y I G T I E Y D P R T Y T C I F N	
AF003625	31072	ctatctgaacaaccctgtcttcaactgttaccatcgctctgcatccacttcctccctct	
U52219	612	ctatctgaacaaccctgtcttcaactgttaccatcgctctgcatccacttcctccctct	
MRR AA	182	Y L N N P V F T V T I V C I H F V L P L	

Fig. 5C

AF003625	31132	cctcatcgtgggtttctgctacgtgaggatctggaccaaaagtgtggcgcccgtagacc
U52219	672	cctcatcgtgggtttctgctacgtgaggatctggaccaaaagtgtggcgcccgtagacc
MRR AA	202	L I V G F C Y V R I W T K V L A A R D P
AF003625	31192	tgcagggcagaatcctgacaaccaacttgctgaggttcgcaattttctaaccatgtttgt
U52219	732	tgcagggcagaatcctgacaaccaacttgctgaggttcgcaattttctaaccatgtttgt
MRR AA	222	A G Q N P D N Q L A E V R N F L T M F V
AF003625	31252	gatcttcctcctctttgacagtgtgctgggtgcctatcaacgtgctcactgtcttgggtggc
U52219	792	gatcttcctcctctttgacagtgtgctgggtgcctatcaacgtgctcactgtcttgggtggc
MRR AA	242	I F L L F A V C W C P I N V L T V L V A
AF003625	31312	tgtcagtcaggagatggcaggcaagatccccaaactggctttatcttgcagcctactt
U52219	852	tytcagtcaggagatggcaggcaagatccccaaactggctttatcttgcagcctactt
MRR AA	262	V S P K E M A G K I P N W L Y L A A Y F

Fig. 5D

AF003625	31372	catagcctacttcaacagctgcctcaacgctgtgatctacgggctcctcaatgagaattt	
U52219	912	catagcctacttcaacagctgcctcaacgctgtgatctacgggctcctcaatgagaattt	
MRR AA	282	I A Y F N S C L N A V I Y G L L N E N F	
AF003625	31432	ccgaagagaatactggaccatcttccatgctatgcggcacccctatcataattctctctgg	
U52219	972	ccgaagagaatactggaccatcttccatgctatgcggcacccctatcataattctctccctgg	
MRR AA	302	R R E Y W T I F H A M R H P I I F F P G	
AF003625	31492	cctcatcagtgatattcgtgagatgcaggagggcccgtaacctggccccgccccgcccc	
U52219	1032	cctcatcagtgatattcgtgagatgcaggagggcccgtaacctggccccgccccgcccc	
MRR AA	322	L I S D I P E M Q E A R T L A P A P A H	
AF003625	31552	tgctcgcgaccaagctcgtgaacaagaccgtgccccatgcctgtcctgtgtggaggaaac	
U52219	1092	tgctcgcgaccaagctcgtgaacaagaccgtgccccatgcctgtcctgtgtggaggaaac	
MRR AA	342	A R D Q A R E Q D R A H A C P A V E E T	

Fig. 5E

AF003625	31612	ccgatgaatgtccggaatgttccattacctggtgatgctgcagctggccaccccgaccg	
U52219	1152	ccgatgaatgtccggaatgttccattacctggtgatgctgcagctggccaccccgaccg	
MRR AA	362	P M N V R N V P L P G D A A A G H P D R	
AF003625	31672	tgcctctggccaccctaagccccattccagatcctcctctgcctatcgcaaatctgcctc	
U52219	1212	tgcctctggccaccctaagccccattccagatcctcctctgcctatcgcaaatctgcctc	
MRR AA	382	A S G H P K P H S R S S A Y R K S A S	
AF003625	31732	taccaccacaagtctgtcttttagccactccaaggctgcctctgtggtcacctcaagcctgt	
U52219	1272	taccaccacaagtctgtcttttagccactccaaggctgcctctgtggtcacctcaagcctgt	
MRR AA	402	T H H K S V F S H S K A A S G H L K P V	
AF003625	31792	ctctggccactccaagcctgcctctgtgtcaccccccaagtctgccaactgtctacccctaagcc	
U52219	1332	ctctggccactccaagcctgcctctgtgtcaccccccaagtctgccaactgtctacccctaagcc	
MRR AA	422	S G H S K P A S G H P K S A T V Y P K P	

Fig. 5F

AF003625	31852	tgcctctgtccatttcaaggctgactctgtccatttcaagggtgactctgtccatttcaa	
U52219	1392	tgcctctgtccatttcaagggtgactctgtccatttcaagggtgactctgtccatttcaa	
MRR AA	442	A S V H F K G D S V H F K G D S V H F K	
AF003625	31912	gcctgactctgtttcatttcaagcctgtctccagcaaccccaagcccatcactggccacca	
U52219	1452	gcctgactctgtttcatttcaagcctgtctccagcaaccccaagcccatcactggccacca	
MRR AA	462	P D S V H F K P A S S N P K P I T G H H	
AF003625	31972	tgtctctgtggcagccactccaaagtctgccttcagtgtgccaccagccacctaaacc	
U52219	1512	tgtctctgtggcagccactccaaagtctgccttcagtgtgccaccagccacctaaacc	
MRR AA	482	V S A G S H S K S A F S A A T S H P K P	
AF003625	32044	catcaagccagctaccagccatgtgtgagccaccactgctgactatccccaagcctgccac	
U52219	1572	catcaagccagctaccagccatgtgtgagccaccactgctgactatccccaagcctgccac	
MRR AA	502	I K P A T S H A E P T A D Y P K P A T	

Fig. 5G

AF003625	32104	taccagccaccctaaagcccactgctgctgacaaccctgagctctctgcctcccatgccc	
U52219	1632	taccagccaccctaaagcccgctgctgctgacaaccctgagctctctgcctcccatgccc	
MRR AA	522	T S H P K P A A A D N P E L S A S H C P	
AF003625	32164	cgagatccctgccattgcccaccctgtgtctgacgacagtgacctccctgagtcggcctc	
U52219	1692	cgagatccctgccattgcccaccctgtgtctgacgacagtgacctccctgagtcggcctc	
MRR AA	542	E I P A I A H P V S D D S D L P E S A S	
AF003625	32224	tagccctgcccgtggggcccaagcctgctgccagccagctggagctctgacaccatcgc	
U52219	1752	tagccctgcccgtggggcccaagcctgctgccagccagctggagctctgacaccatcgc	
MRR AA	562	S P A A G P T K P A A S Q L E S D T I A	
AF003625	32284	tgaccttcctgaccctactgtagtcactaccagtagtaccatgattaccatgctcgtggt	
U52219	1812	tgaccttcctgaccctactgtagtcactaccagtagtaccatgattaccatgctcgtggt	
MRR AA	582	D L P D P T V V T T S T N D Y H D V V V	

Fig. 5H

AF003625	32344	tattgatgttgaagatg	atccctgatg	aaatggctgtgtg	aaaaatgctctcgtaggtggc
U52219	1872	tg	ttgatgttgaagatg	atccctgatg	aaatggctgtgtg
MRR AA	602	V	D	V	E
			D	D	P
			D	D	P
			E	D	E
			M	A	V
					^^^
AF003625	32404	caggcagt			
U52219	1932	caggcagt			

Fig. 5I